

CLAIMS

1. An ion conductor comprising:
a fine particle of an organic polymer including 20 to 80% by mass of a
5 ultra-fine particle of an inorganic compound; and
an electrolytic solution impregnated into the fine particles of the organic
polymer,
wherein the ultra-fine particle of the inorganic compound has an average
particle diameter of 500 nm or less, and the fine particle of the organic polymer has a
10 specific surface area measured by the BET method of 30 m²/g or more.
2. The ion conductor according to claim 1, wherein a degree of impregnation with
the electrolytic solution with respect to the fine particle of the organic polymer is 500 to
2000% by mass.
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3. The ion conductor according to claim 1, wherein the fine particle of the organic
polymer has an average particle diameter of 1 to 1000 μm.
4. The ion conductor according to claim 1, wherein the fine particle of the organic
20 polymer has an average breadth of 20 μm or less and an average aspect ratio of 5 to 20.
5. The ion conductor according to claim 1, wherein the inorganic compound is at
least one inorganic compound selected from the group consisting of a metal oxide, a
metal hydroxide, and a metal carbonate.

6. The ion conductor according to claim 1, wherein the organic polymer is at least one organic polymer selected from the group consisting of a polyamide, a polyurethane, and a polyurea.

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7. The ion conductor according to claim 5, wherein the fine particle of the organic polymer is obtained by an interfacial polycondensation reaction caused from a contact between

10 an organic solution (A) containing at least one compound selected from the group consisting of a dicarboxylic acid dihalide, a dihaloformate and a phosgene, and an organic solvent, and

an aqueous solution (B) containing a metal compound of at least one alkali metal element with other metal elements, a diamine, and water.

15 8. An electrochemical display device comprising:

two electrode plates;

the ion conductor according to claim 1 maintained between the two electrode plates; and

20 a material which changes color reversibly by an electrochemical oxidation-reduction reaction in the ion conductor.

9. The electrochemical display device according to claim 8, wherein the material which changes color reversibly by the electrochemical oxidation-reduction reaction is a color-developing agent included in the ion conductor.

10. The electrochemical display device according to claim 8, wherein the material which changes color reversibly by the electrochemical oxidation-reduction reaction forms a color-developing layer set on the electrode plates.